however, the Examiner believes that there are any
unresolved issues, or believes that some or all of the
claims are not in condition for allowance, the applicants
respectfully request that the Examiner contact the
undersigned to schedule a telephone Examiner Interview
before any further actions on the merits.

Rejections under 35 U.S.C. § 102

Rejections based on the Veerina patent

Claims 1 and 5 stand rejected under 35 U.S.C.
§ 102 as being anticipated by U.S. Patent No. 6,243,379
(hereafter referred to as "the Veerina patent"). The
applicants respectfully request that the Examiner
reconsider and withdraw this ground of rejection in view of
the following.

Claim 1 is not anticipated by the Veerina patent
because the Veerina patent does not teach determining
whether or not a packet, that has had at least a part of
its layer 2 header replaced with a unique bit string that
is independent of the contents of the packet, is entitled
to access a particular service using at least a portion of
the unique bit string. Claim 1 is reprinted below with
this feature depicted in bold typeface:

> A method for provisioning services to
> packets sourced from a number of client
> devices, **each of the packets having at
> least a part of a layer 2 header
> replaced with a unique bit string that
> is independent of the contents of the**

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received packets, the method
comprising:

> a) **determining whether or not the
> packet is entitled to access a
> particular service using at least
> a portion of the unique bit
> string;** and
> b) if it is determined that the
> packet is entitled to access the
> particular service, then routing
> the packet. [Emphasis added.]

Similarly, claim 5 is not anticipated by the Veerina patent
because the Veerina patent does not teach determining a
quality of service level to which a packet, that has had at
least a part of its layer 2 header replaced with a unique
bit string that is independent of the contents of the
packet, is entitled using at least a portion of the unique
bit string. Claim 5 is reprinted below with this feature
depicted in bold typeface:

> A method for providing various
> quality of service levels to packets
> sourced from a number of client
> devices, **each of the packets having at
> least a part of a layer 2 header
> replaced with a unique bit string that
> is independent of the contents of the
> packets,** the method comprising:
> > a) **determining a service level to
> > which the packet is entitled using
> > at least a portion of the unique
> > bit string;** and
> > b) forwarding the packet to a
> > queue associated with the service
> > level determined. [Emphasis
> > added.]

The Examiner argues that the connection-level multiplexing
("CLM") technique discussed in the Veerina patent teaches

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these features.   (Paper No. 12, pages 2 and 3.)   This is
not correct.

The CLM technique discussed in the Veerina patent
does not teach determining whether or not a packet, that
has had at least a part of its layer 2 header replaced with
a unique bit string that is independent of the contents of
the packet, is entitled to access a particular service (or
entitled to a particular service level) using at least a
portion of the unique bit string.   More specifically, the
Examiner argues that the outbound packet transfer in the
Veerina patent replaces private packet service source IP
address and port number (arguing that a port number teaches
a layer 2 MAC header), uses the lookup table 16 to
determine whether the packet is entitled to access a
particular service of WAN links 26, and if [the address] is
not found, then dropping the packet.   Since this position
reflects an incorrect understanding of port numbers, as
well as an incorrect understanding of how CLM technique of
the Veerina patent processes outbound packets, the
applicants will address these two points below.

First, a port number does not teach a layer 2 MAC
header.   As is understood to those skilled in the art, the
transmission control protocol ("TCP") uses a port, along
with the IP address of a host, to define sockets (i.e.,
sender and receiver endpoints).   TCP is a transport layer
protocol -- layer 4 in the OSI 7-layer reference model.
(Further, an IP address is a layer 3 address.)
Accordingly, replacing a port number does not teach
replacing at least a portion of a layer 2 header with a

unique bit string. Accordingly, claims 1 and 5 are not
anticipated by the Veerina patent for at least this reason.

Second, in the CLM technique of the Veerina
patent, if an outbound packet does not have an entry in the
lookup table 16, a new entry is created. More
specifically, the Veerina patent specifies:

> For packets belonging to new
> connections (i.e., without table
> entry), LAN CLM functional module 14
> maps such packets to external WAN
> links, preferably through default or
> certain allocation criteria link
> assignments.
>
> .
> .
> .
>
> Once the selection [of external
> WAN links] has been made (i.e., to map
> outgoing packet through particular
> external WAN link), an entry is created
> or activated in the IP translation
> table, and outgoing handler translates
> and forwards such packet and connection
> information to IP router 12. Router 12
> sends data to outgoing handler when
> router has packet that is destined for
> a non-local network.

Column 3, line 49 through column 4, line 13. See, also,
blocks 56, 58, 60, 62 and 64 of Figure 4. Figure 5 deals
with inbound packets that can be dropped if the packet does
not belong to an existing connection in the translation
table 16. However, dropping packets this way, after they
have already been forwarded to the appropriate module 10,
wastes network resources. That is, in the Veerina patent,
dropping packets, if any, is performed upon egress, but
never upon ingress, and therefore does not operate on

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packets sourced from client devices. Accordingly, claims 1 and 5 are not anticipated by the Veerina patent for at least this additional reason.

More importantly, the Veerina patent does not teach determining whether or not a packet is entitled to access a particular service, or entitled to a particular service level, using on at least a portion of a unique bit string which replaced at least a part of a layer 2 address and which is independent of the contents of the packet. As discussed in the amendment filed on March 13, 2002, the Examiner is interpreting the term "entitled" unreasonably broadly to include "addressing". The ordinary meaning of entitled is to furnish with a right. See, e.g., Webster's II: New Riverside University Dictionary, p. 435. (Copy filed herewith.) The applicants did not give the term "entitled" a contrary meaning. Since a user can address a packet however they please, merely determining whether or not a packet is **addressed** to a particular device is **not** the same as determining whether or not the packet is **entitled** to go to the addressed device. For example, even if a properly addressed packet **can** be forwarded (or some other service), if it isn't entitled, it **may not** be forwarded (or some other service). The applicants offered the following analogies:

Address (can)	Permission (may)
Addressed Envelope	Proper postage;
Ticket to another country	Passport;
Bank Account Number	Personal ID Number (PIN)

During the telephone interview of June 3, 2002, the Examiner argued that if the packet is not properly addressed, it is not entitled to be forwarded. The applicants believe that, in the context of the present invention, checking permission and forwarding are two separate steps. For example, in Figure 19, see permission check 1912 (and 1962 and 1968) before forwarding 1926, 1932, 1934 (and 1972). The applicants have added dependent claim 31 to explicitly recite that address-based forwarding is performed separately from the entitlement determination. This is supported, for example, by Figure 19, which shows block 1912 before blocks 1926 and 1932 and blocks 1956 and 1958 before block 1962. Accordingly, claims 1 and 5 are not anticipated by the Veerina patent for at least this additional reason.

In view of the foregoing, the applicants respectfully submit that this ground of rejection should be withdrawn.

Rejections based on the Dunne patent

Claims 1-13, 15-25 and 28-31 stand rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,740,375 (hereafter referred to as "the Dunne patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

The Dunne patent does not anticipate any of independent claims 1, 5, 9, 13 and 15 because it does not

perform any operations based on a unique bit string that has replaced at least a portion of a layer 2 header, let alone the specific actions recited in these claims. Each of these claims is reprinted below with at least one patentable feature depicted in bold typeface:

1. A method for provisioning services to packets sourced from a number of client devices, **each of the packets having at least a part of a layer 2 header replaced with a unique bit string that is independent of the contents of the received packets**, the method comprising:
    a) **determining whether or not the packet is entitled to access a particular service using at least a portion of the unique bit string;** and
    b) if it is determined that the packet is entitled to access the particular service, then routing the packet. [Emphasis added.]

5. A method for providing various quality of service levels to packets sourced from a number of client devices, **each of the packets having at least a part of a layer 2 header replaced with a unique bit string that is independent of the contents of the packets**, the method comprising:
    a) **determining a service level to which the packet is entitled using at least a portion of the unique bit string;** and
    b) forwarding the packet to a queue associated with the service level determined. [Emphasis added.]

9. A method for monitoring packets sourced from a group of client devices defining a subset of client devices, **each of the packets having at least a part of a layer 2 header replaced with a unique bit string**, the method comprising:

    a) **determining whether or not the packet belongs to the group of client devices using at least a portion of at least one of the unique bit string;** and

    b) **if it is determined that the packet does belong to the group of client devices,** then

        i) **copying the packet to generate a duplicate packet,** and

        ii) **forwarding the duplicate packet to a monitoring facility.** [Emphasis added.]

13. An apparatus for provisioning services to packets sourced from a number of client devices, **each of the packets having at least a part of a layer 2 header replaced with a unique bit string**, the apparatus comprising:

    a) an access control list; and

    b) an access controller, the access controller including

        i) **means for determining whether or not the packet is entitled to access a particular service using**

            A) contents of the access control list, and

            B) **at least a portion of the unique bit string,** and

        ii) means for routing the packet if it is determined that the packet is entitled to access the particular service. [Emphasis added.]

15. An apparatus for monitoring
packets sourced from a group of client
devices defining a subset of client
devices, **each of the packets having at
least a part of a layer 2 header
replaced with a unique bit string,** the
apparatus comprising:
>   a)   a monitoring port for
>   accepting packets of the group of
>   client devices to be monitored;
>   b)   **means determining whether or
>   not an accepted packet belongs to
>   the group of client devices using
>   at least a portion of the unique
>   bit string;** and
>   c)   means for
>>   i)   copying the accepted
>>   packet to generate a
>>   duplicate packet, and
>>   ii)   **forwarding the duplicate
>>   packet to the monitoring
>>   port, if it is determined
>>   that the packet was sourced
>>   by a client device belonging
>>   to the group of client
>>   devices.**   [Emphasis added.]

The Examiner argues that the Dunne patent discloses a

method for determining whether or not a received packet is

valid based on its data link layer and if it is not valid,

then dropping the packet. The applicants agree that the

Dunne patent includes <u>a very general statement</u> about using

a destination or source IP or MAC address, and/or a source

port, as criteria to perform an action, such as dropping a

packet. However, this very general statement does not

teach the specific features of the claims. More

importantly, **<u>this very general statement does not teach</u>**

<u>using a unique bit string, which replaced at least a</u>

<u>portion of a layer 2 header, to make a particular</u>

<u>determination</u>.

The Examiner also correctly notes that the Dunne patent determines whether a packet is a broadcast packet [of a user-selected subnetwork] by examining its data link layer, and if it is a broadcast packet [of a user-selected subnetwork], then copying the packet and replacing IP destination address in the copy with an IP destination address from a broadcast list to form a new packet. (Paper No. 12, pages 3 and 4.) However, this teaching of the Dunne patent fails to teach any of the following features:

determining whether or not a packet, that has had at least a part of its layer 2 header replaced with a unique bit string that is independent of the contents of the packet, is entitled to access a particular service using at least a portion of the unique bit string (claim 1);

determining a quality of service level to which a packet, that has had at least a part of its layer 2 header replaced with a unique bit string that is independent of the contents of the packet, is entitled using at least a portion of the unique bit string (claim 5);

determining whether or not a packet, that has had at least a part of its layer 2 header replaced with a unique bit string that is independent of the contents of the packet, belongs to the group of client devices using at least a portion of at least one of the unique bit string, and if it is

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determined that the packet does belong to
the group of client devices, then copying
the packet to generate a duplicate packet,
and forwarding the duplicate packet to a
monitoring facility (claim 9);

an access controller including means for
determining whether or not a packet, that
has had at least a part of its layer 2
header replaced with a unique bit string
that is independent of the contents of the
packet, is entitled to access a particular
service using contents of the access control
list, and at least a portion of the unique
bit string (claim 13); or

means determining whether or not an accepted
packet, that has had at least a part of its
layer 2 header replaced with a unique bit
string that is independent of the contents
of the packet, belongs to the group of
client devices using at least a portion of
the unique bit string and means for copying
the accepted packet to generate a duplicate
packet, and forwarding the duplicate packet
to the monitoring port, if it is determined
that the packet was sourced by a client
device belonging to the group of client
devices (claim 15).

That is, the Dunne patent examines a layer 2 information,
not a unique bit string that has replaced at least a part

of layer 2 header information. All of the independent
claims are patentable for at least this reason. Moreover,
claims 9 and 15 are further patentable because the Dunne
patent does not teach forwarding a duplicate copy of a
packet to a monitoring facility.

Furthermore, although the Dunne patent does
replace an IP (layer 3) destination address with other IP
addresses from a broadcast list, it does so **after** a
filtering operation, **not before a filtering operation**.
Furthermore, replacing a IP (layer 3) destination address
does not teach replacing at least a part of a layer 2
header with a unique bit string.

In view of the foregoing, independent claims 1,
5, 9, 13 and 15 are not anticipated by the Dunne patent.
Since the rejected dependent claims include the elements of
the rejected base claims from which they, either directly
or indirectly, depend, these claims are similarly not
anticipated by the Dunne patent.

With regard to dependent claims 3, 4, 7, 8, 11
and 12, the Examiner argues that current IP address of the
Dunne patent teaches a VPN-OUI and the list pointer of the
Dunne patent teaches a VPN-Index. (Paper No. 12, page 4.)
Both of these assertions are incorrect. IP addresses
aren't used as an organizational universal identifier
because different organizations could use the same IP
address, particularly in the case of VPNs. The broadcast
list pointer of the Dunne patent is merely used to ensure
that a duplicate of the packet is sent to each address in
the list. It has nothing to do with identifying a VPN.

Accordingly, these claims are not anticipated by the Dunne patent for at least these additional reasons.

With regard to dependent claims 2, 10, 16-25 and 28-31, the applicants note that **the Examiner did not even address the features of these claims**, as is required. (See MPEP 706 and 707.07(d).) If the Examiner continues to reject these claims in the future, the applicants request that the Examiner specifically address each of the features of these claims.

Rejections under 35 U.S.C. § 103

Claims 14, 26 and 27 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,566,170 ("the Bakke patent") in view of the Dunne patent, and further in view of U.S. Patent No. 6,104,700 (hereafter referred to as "the Haddock patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Claim 14 is not rendered obvious by these patents because these patents, either taken alone, or in combination, neither teach nor suggest, a service level controller including means for determining a service level to which a packet, which has had at least a port of its layer 2 header replaced by a unique bit string that is independent of contents of the packets, is entitled using contents of a service level list, and at least a portion of the unique bit string, and means for forwarding the packet to the one of the plurality of queues associated with the

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quality of service level determined. Claim 14 is reprinted below with this feature depicted in bold typeface:

> An apparatus for providing various service levels to packets sourced from a number of client devices, **each of the packets having at least a part of a layer 2 header replaced with a unique bit string that is independent of contents of the packets**, the apparatus comprising:
>
> a) a plurality of queues, each of the plurality of queues associated with a particular service level;
>
> b) a service level list; and
>
> c) **a service level controller, the service level controller including**
>
>> **i) means for determining a service level to which the packet is entitled using**
>>
>>> **A) contents of the service level list, and**
>>> **B) at least a portion of the unique bit string, and**
>>
>> **ii) means for forwarding the packet to the one of the plurality of queues associated with the quality of service level determined.**
>
> [Emphasis added.]

These features are discussed below. Moreover, one skilled in the art would not have been motivated to combine the references as proposed by the Examiner.

The Examiner argues that the Bakke patent discloses a forwarding device with a plurality of queues, that the content addressable memory ("CAM") 128 teaches a service level list, that the identifier 122 teaches a

service level controller, and that the media header teaches a unique bit string. First, the buffers in the Bakke patent are not queues related to various service levels -- they hold bits that are demultiplexed or multiplexed based on periodic clocking. (See column 9, lines 29-49.) The CAM 128 is used to obtain an address used by the forwarding processor 108, not to determine various service levels. (See column 44-59.) Finally, the identifier 122 does not control a service level, rather it is merely used to find media header information of a protocol data unit. (See column 9, lines 57-61.) Thus, independent claim 14 is not rendered obvious by the Bakke, Dunne and Haddock patents for at least this reason. Since claims 26 and 27 depend from claim 14, they are similarly not rendered obvious by these patents.

The Examiner relies on the replacement of IP destination addresses in the Dunne patent to teach a packet having layer 2 header information replaced by a unique bit string. However, since IP address is layer 3 information, and not found in a layer 2 header, this feature of the Dunne patent is irrelevant to the claimed invention. Thus, independent claim 14 is not rendered obvious by the Bakke, Dunne and Haddock patents for at least this additional reason. Since claims 26 and 27 depend from claim 14, they are similarly not rendered obvious by these patents.

The Examiner contends that the Haddock patent teaches a forwarding device which determines quality of service levels based on a packet's IP (layer 3) address or its MAC (layer 2) address, and buffering the packet in a QoS queue associated with the determined QoS level. (Paper
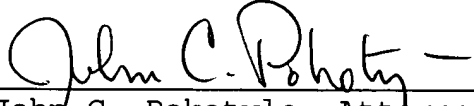
No. 12, page 6.). The Examiner then concludes that it would have been obvious to apply Haddock's teaching to the Dunne system to provide quality of service for various QoS levels. Even assuming, arguendo, that this is true, the teaching of the Haddock patent that QoS determinations can be made based on a MAC address does not teach making such a determination based on a unique bit string that is independent of the packet contents, and that replaced at least a part of the layer 2 header as recited in claim 14. Thus, independent claim 14 is not rendered obvious by the Bakke, Dunne and Haddock patents for at least this additional reason. Since claims 26 and 27 depend from claim 14, they are similarly not rendered obvious by these patents.

Conclusion

In view of the foregoing amendments and remarks, the applicant respectfully submits that the pending claims are in condition for allowance. Accordingly, the applicants request that the Examiner pass this application to issue.

Respectfully submitted,

December 11, 2002

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CERTIFICATE OF MAILING under 37 C.F.R. 1.8(a)

I hereby certify that this correspondence is being deposited on **December 11, 2002** with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

John C. Pokotylo

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